

Bare Forests in Summer: **Tennessee and the Gypsy Moth**

IT'S COMING YOUR WAY:

In the not-so-distant future, Tennesseans will have an obnoxious new neighbor - the gypsy moth. This alien insect will be chomping its way through Tennessee's hardwood forests, stripping the leaves from thousands of acres every year. Some forests will look like winter during the summer.

Around the house, caterpillar droppings and squashed caterpillars will form a slick mess, and caterpillar hairs may cause allergic reactions. Some or all of the leaves on shade trees will be eaten. Trees can be killed by heavy or repeated defoliations.

GYPSY MOTH SPREAD INTO TENNESSEE:

The gypsy moth was brought to Massachusetts from Europe in 1869. Since then, it has spread southward midway into Virginia and is now approaching Tennessee at a rate of about 10 miles per year. It should arrive in northeastern Tennessee within 10 to 15 years.

This moth spreads in three ways:

- crawling (females can't fly);
- "ballooning" - tiny gypsy moth caterpillars spin silk thread on which they ride to new homes, carried by wind;
- "hitchhiking" - adult moths lay masses of eggs on trucks, cars and campers, which carry them hundreds of miles away.

There is no way to stop the main infestation from spreading into Tennessee, but there are several ways we can delay it:

- trapping;
- spraying small outbreaks;
- reporting any gypsy moth eggs or caterpillars seen.

Tennessee and other states set out thousands of triangular cardboard traps every year from June to August to catch moths which hatch from "hitchhiking" eggs. Traps are put in rest areas, trailer parks, state parks - anywhere that lots of out-of-state vehicles stop. Areas where moths are found are trapped more heavily the following year.

CONTROLLING GYPSY MOTH SPREAD:

If moths get past the traps and start to spread, the area is sprayed with insecticides before the outbreak gets too large to control. Spraying is done by the Tennessee Department of Agriculture, Plant Certification Section, only as a last resort after public notification and input. These sprayings strictly follow all insecticide label instructions.

Several diseases, parasites and predators have been introduced to control the gypsy moth, but none has worked very well. The most effective biological control so far is spraying with B.t., a bacterium which kills the caterpillars when they are young (first to third growth stages).

GYPSY MOTH IDENTIFICATION:

Everyone can help by learning to recognize egg masses and reporting them to the Tennessee Department of Agriculture, Plant Certification Section.

Egg masses are laid beginning in August and are about 25 millimeters (one inch) long, oval or oblong in shape, and covered with fine tan-colored hairs. They are usually hidden in places like bark crevices, the undersides of branches, or under boards, rocks, firewood and lawn furniture. Eggs hatch in late April or early May.

Caterpillars are only one millimeter (one-sixteenth of an inch) when they hatch. They go through several growth stages until they are about 50 millimeters (2 inches) long. By June the caterpillars, if numerous, are big enough to strip all the leaves off trees. All gypsy moth caterpillars have dark, bristly hairs. Their looks change from stage to stage.

First growth stage: five millimeters long, mostly black. Lives in tree tops and travels by "ballooning." Chews small holes in leaves during the day.

Second growth stage: 11 millimeters long, black with irregular yellow marks. Noticeable leaf feeding is present during the day in tree tops and occurs from the outer edge of the leaf toward the center.

Third growth stage: 15 millimeters long, black with yellow marks plus 10 pairs of blue dots down back. Leaf feeding similar to the second growth stage.

Fourth to sixth growth stages: 25 to 65 millimeters long, have pairs of raised humps on back; first five pairs of humps are blue, last six are brick red. Entire leaves are eaten. Caterpillars hide in the day on tree trunks and feed at night on the leaves. Feeding ends in June or early July.

GYPSY MOTH MANAGEMENT:

Several things can be done to keep populations of the gypsy moth low when it finally arrives in Tennessee. Keep your trees healthy by watering, fertilizing and pruning. Scrape off and destroy egg masses on shade trees. Reduce the number of places where moths can hide egg masses in yards by keeping outdoor articles and debris to a minimum. Put trapping bands around yard trees. Spray insecticides to protect valuable forest and yard trees favored by the gypsy moth. Plant tree species which gypsy moth caterpillars don't like to eat. And encourage animals that eat the gypsy moth.

The caterpillar's favorite trees are apple, basswood, birches, boxelder, hawthorn, oak, sweetgum and willow. It also eats many other kinds of trees.

The caterpillar does not like ash, baldcypress, black locust, catalpa, dogwood, Fraser fir, holly, honey locust, mulberry, redcedar, sycamore and yellow poplar, but it will eat them during a heavy outbreak to avoid starvation.

The best time to spray is in May.

Trapping bands can either be burlap or sticky. Older caterpillars (fourth to sixth growth stages) hide under the burlap during the day. The band should be checked every day and the caterpillars killed. Sticky bands trap caterpillars as they crawl up trees to feed at night.

Birds, beetles, spiders, mice, chipmunks, and squirrels will eat the gypsy moth. These helpful animals and insects can be attracted by planting ground cover, bushes and fruit trees and by putting up bird feeders.

CHANGES IN FOREST COMPOSITION:

People who own forest land should favor a variety of trees, especially the kinds caterpillars don't like.

Pure oak forests on dry ridges are the most likely to be severely defoliated. Some of these trees will die. Forests composed of less than half oaks will survive these outbreaks better. Landowners might want to consider selling some of their oak timber before the gypsy moth infestation arrives and places them under stress. Young, vigorous trees are often best able to recover from caterpillar defoliations and the accompanying stresses.

The gypsy moth is likely to change forest composition in Tennessee over the next several decades. There will be less oak and more ash, maple, sycamore, and yellow poplar. Beech, black cherry, black locust, hickory and pine may also invade oak-killed sites.

DO YOUR PART:

Regardless of control procedures adopted, the most successful way to reduce gypsy moth populations in heavily-infested areas is through state and community-wide actions. This requires cooperation among all interested agencies and landowners.

The agency primarily involved in state and community-wide control programs is the Tennessee Department of Agriculture. Any information regarding the gypsy moth should be reported to this agency in care of the Division of Plant Certification, PO Box 40627 Melrose Station, Nashville, TN 37204; phone: (615) 837-5150.

All help is appreciated and fosters good cooperation in keeping the gypsy moth populations low. The gypsy moth is a forest problem and a 'people' problem for us all.